

ABSTRACT

A DSL system includes a multiple loop segment where K loops are bonded to
5 provide a multiple loop segment having up to $(2K-1)$ communication channels on which
transmissions are vectored. The segment may be a drop to a customer premises, an inter-
pedestal link, or any other suitable part of a larger DSL system. Generally the bonded
loops are relatively short, being 300 meters or less. Signal vectoring is used to increase
the speed and data carrying capability of the channels. In some embodiments, an
10 expanded frequency spectrum also can be used to increase the data carrying capability of
one or more of the channels. An impedance matching circuit may be coupled to each end
of the segment to provided efficient transmission of data across the segment. A controller
may provide control signals used to operate the segment as a vectored system and, if
desired, frequency bandwidth control signals. The controller may monitor and/or collect
15 data and information from the DSL system to assist in generating control signals. The
controller can be a dynamic spectrum manager or DSM Center that includes a computer
system and/or other hardware to assist in performing the required functions.